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DEVELOP NEW BLUEPRINT TECHNOLOGY AND ALL-PURPOSE ADHESIVE

AVIATION INSTITUTE ADOPTS NEW METHOD OF MAKING BLUEPRINTS -- Moscow, Moskovskiy Stroitel', 24 Nov 51

Beginning the middle of 1951, Giproaviaprom (State Planning Institute of the Aviation Industry) has been using a new method of making and reproducing blueprints suggested by Stalin Prize winners A. Potapov and I. Shchenev. The method consists of reproducing the blueprints from originals made on emulsified tracing paper in pencil, without copying in ink. Use of the new method has cut in half the time required for making blueprints, eliminates consumption of Whatman [paper], and reduces faulty bluing.

In divisions of the institute where the method is in use, half the tracers have been assigned to other jobs. The reproductions are made as follows:

The right side of the tracing paper is covered with emulsion No 1, which is composed of soluble glass, 32 percent by weight; precipitated chalk, 18 percent; and water, 50 percent. Emulsion No 2 is put on the back of the paper. This consists of 32 percent soluble glass, 2 percent chalk, and 66 percent water. As the emulsion dries, the paper is rewound onto rolls by means of a belt drive and two blocks. Reproduction of the blueprints on a blueprint apparatus is done by the usual method.

The emulsified paper has a certain yellowishness which increases printing time or requires greater intensity of light in the apparatus. Associates of the institute improved the new technology by adding ultramarine to the emulsion. As a result, they obtained a clear, transparent paper, which makes it possible to put twice as many blueprints through the apparatus. During the last 6 months, the new method of making blueprints has saved Giproaviaprom almost 300,000 rubles. -- V. Shishkina

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BEGIN PRODUCTION OF PHOTOSENSITIVE AND INDICATOR PAPER -- Riga, Sovetskaya Latviya, 4 Jul 51

The Riga Chemical Combine has mastered the production of photosensitive paper needed for blueprints in the machine-building industry. Recently a large shipment of this paper was sent to planning organizations at the construction projects.

In June engineering-technical workers made samples of indicator paper for use in chemical analysis. In July mass production of indicator paper will begin.

CREATES "CARBINOL GLUE" -- Moscow, Nauka i Zhizn', Sep 51

All adhesives, natural and synthetic, cement similar materials together satisfactorily: fibrous with fibrous, glass with glass, rubber with rubber; but none of them are effective for cementing wood to metal, for example, or leather to glass.

The scientists of many countries have long labored over the creation of substances suitable for cementing unlike materials, but none of the proposed adhesives has satisfied the increased demands of industry.

Ivan Nikolayevich Nazarov, a Soviet scientist, corresponding member of the Academy of Sciences USSR, and talented student of academician A. E. Favorskiy, has now solved this problem completely. As a result of the numerous experiments on the basis of one of the derivitives of acetylene, vinylacetylene, he created an unusual adhesive liquid, vinylethinyl carbinol, or "carbinol glue." When this liquid gradually thickens to a syrup, it adheres to the surface of glass, metal, porcelain, fibers, and marble.

To test the durability of this adhesive, several pieces of aluminum were cemented together in sheet form, and a plate was stamped from the sheet by a common process. The metal in the stamping was somewhat stretched, but all the cemented joints remained firm.

Carbinol glue is both heat and cold resistant. The adhesive film will remain equally strong at plus or minus 60 degrees.

Nazarov's invention permitted the replacement of Canada balsam in cementing together parts in optical instruments and the development of a series of new optical methods, which function reliably under the most diverse temperature conditions. Carbinol glue has been successfully used to cement marble slabs in subway stations of the Moscow Metro. It also sticks fabric together perfectly. Storage-battery containers which have gone out of order can be successfully restored with carbinol glue.

A strong adhesive film is formed during the drying of the carbinol glue, as a result of the polymerization of the liquid. Just as in the formation of unbreakable glass from acrylic acid esters, or soft rubber from vinyl chloride, small molecules of the carbinol are changed into larger molecules of a new substance, which adheres to the surfaces being cemented.

After long storage, carbinol glue changes from a thick syrup into a hard, transparent, glasslike, yellow mass. To prevent its further solidification, a small quantity of stabilizer, diphenylamine, is added to it. To accelerate the hardening of the film, a catalyst is added to the carbinol before cementing. The adhesive film does not dissolve in oil, benzine, or acetone; it is resistant to water, acids, and alkalies.

For developing carbinol glue, which has found widespread application in various branches of the national economy, Nazarov was awarded a Stalin Prize.

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